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10/699,320	10/31/2003	John Matthew Powers	125061	2547

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John S. Beulick  
Armstrong Teasdale LLP  
Suite 2600  
One Metropolitan Square  
St. Louis, MO 63102

EXAMINER

AFZALI, SARANG

ART UNIT PAPER NUMBER

3726

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



**DETAILED ACTION**

***Response to Amendment***

1. The applicant's amendment filed on 05/30/2006 has been fully considered and made of record.

***Election/Restrictions***

2. Applicant's election with traverse of Group II, drawn to claims 6-16, in the reply filed on 05/30/2006 is acknowledged.

The traversal is on the ground(s) that according to the Applicant that a thorough search and examination of either Group would be relevant to the examination of the other Groups and would not be a serious burden on the Examiner. Additionally, requirements for election are not mandatory under 35 U.S.C. § 121.

This is not found persuasive because as set forth in the restriction requirement, Group I drawn to Method claims 1-5 and Groups II and III drawn to Apparatus claims 6-20 are related as process and apparatus for its practice and they are distinct since the apparatus as claimed can be used to practice another and materially different process such as one which does not require grinding of the blade based on the zero reference.

Also, the search required for each of the groups are dissimilar enough to show an undue burden on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

Claims 1-5 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or

linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 05/30/2006.

### ***Specification***

3. The abstract of the disclosure is objected to because it refers to a non-elected method claim. Correction is required. See MPEP § 608.01(b).

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "AN APPARATUS FOR REBUILDING GAS TURBINE ENGINE BLADES".

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 19 depends on claim 17, which already recites "a base member comprising a platform comprising an end plate and an upper surface for supporting slide block and locator block assembly". However, claim 19, further recites "a base member comprising a platform comprising an upper surface for supporting the slide block and

locator block assemblies with an end plate extending from the platform upper surface”.

This is confusing and unclear as if claim 19 is claiming a second base member in addition to an existing base member already recited in claim 17 or there is only one base member.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 6-9, 11, 12, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Wikle (U.S. 5,645,466).

As applied to claim 6, Wikle teaches an apparatus for supporting a turbine blade to be worked on comprising of:

at least one locator pin (the round pin on the left of the root portion 31, Fig. 8) configured to engage a serration formed on the blade dovetail (root portion 31 of blade 25, Fig. 8);

a locator block (block 72, Figs. 1 & 8) supporting the locator pin (Fig. 8) wherein the locator block comprises of at least one groove sized to receive the locator pin (Note the groove in the block 72 that supports the locator pin, Fig. 8);

a slide block assembly (slidable block 74, Figs. 1 and 8) for engaging a dovetail surface opposite the serration wherein the slide block assembly is configured to position the blade dovetail against the locator pin; and

a base member (combination of spacer block 61, rotary table unit 62 and circular table 64, Fig. 1) comprising a platform (top of table 64, Fig. 1) comprising an end plate (an end plate of toggle clamp 77, Fig. 1) and an upper surface (upper surface of the top of the table 64, Fig. 1) for supporting said slide block assembly (slidable block 74, Figs. 1 and 8) and said locator block (block 72, Figs. 1 & 8), said slide block assembly (slidable block 74, Figs. 1 and 8) is slidably coupled to said platform upper surface.

As applied to claim 7, Wikle teaches an apparatus for supporting a turbine blade wherein the end plate (an end plate of toggle clamp 77, Fig. 1) extends from said platform upper surface (upper surface of the top of the table 64, Fig. 1).

Note that an end plate of the toggle clamp (77, Fig. 1) extends upward from the upper surface of the table (64, Fig. 1).

As applied to claim 8, Wikle teaches that the platform (top of table 64, Fig. 1) defines a slot (space between the blocks 72 and 74, Figs. 1 & 8) for providing access to the turbine blade (25, Figs. 1 & 8).

As applied to claim 9, Wikle teaches that the slide block assembly (slidable block 74, Figs. 1 and 8) is movable (moving from left to right, Fig. 8) between a first position wherein the blade dovetail is removable from the slide block assembly, and a second position; wherein the blade dovetail is secured to the slide block assembly.

As applied to claim 11, Wikle teaches that the slide block assembly (slidable block 74, Figs. 1 and 8) comprises a push block (the round pin on the right of the root portion 31, Fig. 8) for engaging, the dovetail surface opposite the serration, with the push block configured to limit an amount of travel of the slide block.

Note that push block (the pin on the right of the root portion 31, Fig. 8) has certain dimensions defined meaning that it could only be deployed toward stationary locator block (block 72, Fig. 8) up to a certain limit and therefore it is configured to limit an amount of the travel of the slide block (slidable block 74, Figs. 1 and 8).

As applied to claim 12, Wikle teaches that a drive mechanism is coupling the end plate (an end plate of toggle clamp 77, Fig. 1) and the slide block (slidable block 74, Figs. 1) in order to position the slide block.

As applied to claim 14, Wikle teaches a gauge plate (plate 54, Fig. 1) coupled to the locator block (block 72, Fig. 1) by means of plates 61, 62 and 64 (Fig. 1) for positioning the turbine blade (25) relative to the apparatus with the gauge plate comprising a gauge set block (guide rails 44, Fig. 1) for providing a zero reference point.

Note that each of the guide rails (44, Fig. 1) is in an angle shape and depending to the calibration and movement of gauge plate (54) in X and Y directions (directions 47 and 56, Fig. 1), they can provide a zero reference point.

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 10, 15-18 and 19-20 as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wikle in view of DeMuis (US 4,128,929).

As applied to claim 10, Wikle teaches the invention cited with the exception of exclusively teaching a pair of opposed pins configured to retain the blade dovetail therebetween.

It is known in the art to use opposing pins and multiple locator ribs with sufficient length engaging in the adjacent serrations of a blade dovetail to provide a rigid and effective clamping of the blade in the clamping fixture in order to allow an accurate finishing operation to be done on it.

Furthermore, DeMuis teaches an apparatus used in restoring the worn edge surfaces of turbine blade wherein a plurality of opposed ribbed configuration portions (fixed jaw 74 with plurality of opposed ribbed configurations, Fig. 8) are used for an effective clamping of the blade in order to provide the blade with an accurate and desirable restoration to a dimension closely resembling that of a new blade (col. 6, lines 20-34).

It would have been obvious to one of ordinary skill in the art at the time of invention to have employed the teachings of DeMuis in the apparatus of Wikle, wherein a pair of opposed pins would be provided in the locator block, to provide an effective and rigid clamping of the blade resulting in a precise and accurate finished surface.



As applied to claims 15 and 16, Wikle teaches the invention cited including a locator pin comprising a first end, second end and a clamping section extending therebetween (Fig. 8) but it does not explicitly teach that the clamping section has a length that is substantially equal to a length of the blade dovetail (claim 15) and a locator plate including a stop (claim 16).

However, DeMuis teaches an apparatus used in restoring the worn edge surfaces of turbine blade wherein a locator block with ribbed configuration (fixed jaw 74, Fig. 8) receives the serration (ribs 16, Fig. 8) of the blade dovetail (base portion 15, Fig. 8) and also a locator plate including a stop (stop shoulder of block 78, Fig. 8) for an effective clamping of the blade and positioning of the blade base (15) to provide the blade with an accurate and desirable restoration to a dimension closely resembling that of a new blade (col. 6, lines 20-34).

It would have been obvious to one of ordinary skill in the art at the time of invention to have provided Wikle with a pin length and stop plate as taught by DeMuis in order to provide an effective and rigid positioning and clamping of the blade resulting in a precise and accurate finished surface.

Note that DeMuis teaches that the lengths of the ribbed portions of the jaw (74) are substantially equal to a length of the blade dovetail (Fig. 8).

Note that both Wikle and DeMuis are considered analogous art and within the field of the inventor's endeavor.

As applied to claim 17, Wikle teaches an apparatus for supporting a turbine blade to be worked on comprising of:

a locator pin (the round pin on the left of the root portion 31, Fig. 8) configured to engage a serration formed on the blade dovetail (root portion 31 of blade 25, Fig. 8) wherein the locator pin includes a first end, second end, and a clamping section extending therebetween;

a locator block (block 72, Figs. 1 & 8) supporting the locator pin (Fig. 8) wherein the locator block comprises of at least one groove sized to receive the locator pin (Note the groove in the block 72 that supports the locator pin, Fig. 8);

a slide block assembly (slidable block 74, Figs. 1 and 8) for engaging a dovetail surface opposite the serration wherein the slide block assembly is configured to position the blade dovetail against the locator pin; and

a base member (combination of spacer block 61, rotary table unit 62 and circular table 64, Fig. 1) comprising a platform (top of table 64, Fig. 1) comprising an end plate (an end plate of toggle clamp 77, Fig. 1) and an upper surface (upper surface of the top of the table 64, Fig. 1) for supporting said slide block assembly (slidable block 74, Figs. 1 and 8) and said locator block (block 72, Figs. 1 & 8), said slide block assembly (slidable block 74, Figs. 1 and 8) is slidably coupled to said platform upper surface.

Wikle teaches the invention cited with the exception of exclusively teaching a pair of locator pins to engage adjacent serrations in the turbine blade with each pin having a clamping length substantially equal to a length of the blade dovetail.

It is known in the art to use pins and multiple locator ribs with sufficient length engaging in the adjacent serrations of a blade dovetail to provide a rigid and effective clamping of the blade in the clamping fixture in order to allow an accurate finishing operation to be done on it.

Furthermore, DeMuis teaches an apparatus used in restoring the worn edge surfaces of turbine blade wherein a locator block including a plurality of ribbed configuration portions (fixed jaw 74 with ribbed configurations, Fig. 8) with length substantially equal to a length of the blade dovetail (Fig. 8) for an effective clamping of the blade in order to provide the blade with an effective and desirable restoration to a dimension closely resembling that of a new blade (col. 6, lines 20-34).

It would have been obvious to one of ordinary skill in the art at the time of invention to have employed the teachings of DeMuis in the apparatus of Wikle, wherein multiple locator pins having clamping lengths substantially equal to the length of the blade dovetail would be provided in the locator block, to provide an effective and rigid clamping of the blade resulting in a precise and accurate finished surface.

Note that both Wikle and DeMuis are considered analogous art and within the field of the inventor's endeavor.

As applied to claim 18, Wikle teaches a gauge plate (plate 54, Fig. 1) coupled to the locator block (block 72, Fig. 1) by means of plates 61, 62 and 64 (Fig. 1) for positioning the turbine blade (25) relative to the apparatus with the gauge plate comprising a gauge set block (guide rails 44, Fig. 1) for providing a zero reference point.

Note that each of the guide rails (44, Fig. 1) is in an angle shape and depending to the calibration and movement of gauge plate (54) in X and Y directions (directions 47 and 56, Fig. 1), they can provide a zero reference point.

As applied to claim 19, Wikle teaches an apparatus for supporting a turbine blade wherein the end plate (an end plate of toggle clamp 77, Fig. 1) extends from said platform upper surface (upper surface of the top of the table 64, Fig. 1).

As applied to claim 20, Wikle teaches that the slide block assembly (slidable block 74, Figs. 1 and 8) is movable (moving from left to right, Fig. 8) between a first position wherein the blade dovetail is removable from the slide block assembly, and a second position; wherein the blade dovetail is secured to the slide block assembly.

12. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wikle in view of Broffitt (US 2,907,233).

As applied to claim 13, Wikle teaches the invention cited including a hand actuated drive mechanism for positioning the slide block but does not exclusively teach that the drive mechanism includes a pneumatic cylinder.

It would have been obvious to one of ordinary skill in the art at the time of invention to have used an automated drive including a pneumatic cylinder for positioning of the slide block, since it has been held that broadly providing a mechanical or automatic means to replace manual activity which has accomplished the same result involves only routine skill in the art. *In re Venner*, 120 USPQ 192.

Furthermore, Broffitt teaches an apparatus for manufacturing workpieces such as turbine blades wherein the blade (54) held in blade holder (56) is held against blade positioning points (78, 80, 82, Fig. 3) forced by a pneumatic cylinder (air cylinder 84). It would have been obvious to one of ordinary skill in the art at the time of invention to have provided Wikle with an automated drive including a pneumatic cylinder to provide an effective means of securing the turbine blade in a work fixture.

### ***Response to Arguments***

13. Applicant's arguments with respect to claims 6-16 have been considered but are moot in view of the new ground(s) of rejection.

14. Applicant's Amendment to claim 17 is accepted and therefore, claims 17-20 are being considered for further prosecution.

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

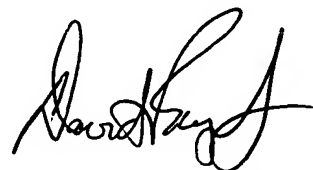
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarang Afzali whose telephone number is 571-272-8412. The examiner can normally be reached on 7:00-3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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S.A.  
SA  
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DAVID P. BRYANT  
SUPERVISORY PATENT EXAMINER